

**REMARKS**

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 1-56 are pending, of which claims 1, 13, 25, 27, 36, 45, and 52 have been amended, as indicated above. Support for the amendments can be found at least at page 11 lines 23-25, page 14 lines 1-25, and at Figs. 4 and 5 of the Application as submitted.

Applicant's amendments and remarks after Final are appropriate under 37 C.F.R. §1.116 because they address the Office's remarks in the Final Action, and thus could not have been presented earlier. In addition, the amendments and remarks should be entered to place the case in better form for appeal.

**35 U.S.C. §103 Claim Rejections**

Claims 1, 3-21, 36-37, 41-45, 47-48, and 50-56 are rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,890,017 to Tulkoff et al. (*hereinafter*, "Tulkoff") in view of U.S. Patent No. 5,768,545 to Solomon (*hereinafter*, "Solomon") (*Office Action* p.2).

Claims 2, 22-30, 32-35, 38, 40, 46, and 49 are rejected under 35 U.S.C. §103(a) as being obvious over Tulkoff in view of Solomon, and further in view of U.S. Patent No. 5,717,154 to Gulick (*hereinafter*, "Gulick") (*Office Action* p.16).

Claims 31 and 39 are rejected under 35 U.S.C. §103(a) as being obvious over Tulkoff in view of Solomon, further in view of Gulick, and further in view of U.S. Patent No. 6,100,461 to Hewitt (*hereinafter*, "Hewitt") (*Office Action* p.25).

1 Claim 1 recites a method, comprising:

2 receiving multiple streams of audio wave data in response to  
3 requests from audio wave data consumers;

4 dynamically generating a plurality of logical buses in  
5 response to a need associated with receiving the streams of audio  
6 wave data, the logical buses each corresponding to one of the audio  
7 wave data consumers;

8 assigning at least one of the multiple streams of audio wave  
9 data to a plurality of the logical buses;

10 routing any audio wave data stream assigned to a particular  
11 logical bus to the audio wave data consumer corresponding to said  
12 particular logical bus; and

13 dynamically releasing at least one of the logical buses when  
14 no longer needed to route a stream of audio wave data.

15 Tulkoff and/or Solomon do not teach or suggest receiving multiple streams  
16 of audio wave data in response to requests from audio wave data consumers, as  
17 recited in claim 1.

18 Tulkoff describes an audio mixer which receives a plurality of audio  
19 streams from a group of audio processes. The audio processes/clients of Tulkoff  
20 are described as being sources of audio streams. After receiving the audio streams  
21 from the audio processes, the audio mixer then mixes the audio streams and sends  
22 a new single mixed audio stream to an audio wave data consumer (e.g., audio  
23 device 14) (*Tulkoff* col.2 ln.63 to col.3 ln.66 and Fig. 1). The process described in  
24 Tulkoff is initiated when one of the sources of the audio stream (e.g., audio  
25 processes 10) issues a command or is playing audio data (*Tulkoff* col.4 lns.1-32  
and Fig. 1). Tulkoff does not describe receiving multiple streams of audio wave

1 data in response to requests from audio wave data consumers, as recited in  
2 claim 1.

3 Solomon describes a buffering scheme for a computer system having agents  
4 of a pre-emptible bus and a non-pre-emptible bus (*Solomon*, Col.3 lns.14-25).  
5 Solomon does not describe receiving multiple streams of audio wave data in  
6 response to requests from audio wave data consumers, as recited in claim 1, and  
7 the Office has not cited Solomon for describing such.

8  
9 Tulkoff and/or Solomon also do not teach or suggest dynamically  
10 generating a plurality of logical buses in response to a need associated with  
11 receiving the streams of audio wave data, the logical buses each corresponding to  
12 one of the audio wave data consumers, as recited in claim 1.

13 The Office acknowledges that Tulkoff does not disclose such, and relies on  
14 Solomon as disclosing this limitation of claim 1 (*Office Action* pp.2-3, *Solomon*  
15 col.3 lns.25-38). The cited section of Solomon describes a peripheral component  
16 interconnect (PCI) bus. This PCI bus is described as being a "pre-emptible", in  
17 that operation of a device connected to the bus can be suspended when a higher  
18 priority operation demands use of the bus (*Solomon*, col.3 lns.25-38). The current  
19 use of an existing bus is pre-empted and the bus is put to a different, higher  
20 priority use. The Office refers to this as the "bus allocation" method of Solomon  
21 (*Office Action* p.3), where an existing bus is allocated to a different higher priority  
22 use. As such, it is clear that Solomon does not describe dynamically generating a  
23 logical bus in response to a need associated with receiving audio wave data, as  
24 recited in claim 1.  
25

1  
2 Tulkoff and/or Solomon also do not teach assigning at least one of the  
3 multiple streams of audio wave data to a plurality of the logical buses, as recited in  
4 claim 1. The Office indicates that Tulkoff discloses a mixer that receives multiple  
5 streams of audio, and that it is inherent that "some sort of connection or bus must  
6 be present" (*Office Action* p.2). Even if Tulkoff inherently discloses some sort of  
7 bus, as the Office contends, Tulkoff does not disclose assigning at least one of the  
8 multiple streams of audio wave data to a plurality of the logical buses, as recited in  
9 claim 1. Tulkoff says nothing about taking one stream (of the multiple streams) of  
10 audio wave data and assigning that one stream of audio wave data to a plurality of  
11 the logical buses.

12 Solomon also does not describe assigning at least one of the multiple  
13 streams of audio wave data to a plurality of the logical buses, as recited in claim 1,  
14 and the Office has not cited Solomon for describing such.

15  
16 Tulkoff and/or Solomon also do not teach or suggest dynamically releasing  
17 at least one of the logical buses when no longer needed to route a stream of audio  
18 wave data, as recited in claim 1.

19 The Office acknowledges that Tulkoff does not disclose such, and relies on  
20 Solomon as disclosing this limitation of claim 1 (*Office Action* p.3, *Solomon* col.3  
21 lns.25-38). However, as described above, the cited section of Solomon describes a  
22 "pre-emptible" PCI bus rather than dynamically generating and/or releasing a bus,  
23 as recited in claim 1. The use of an existing PCI bus in Solomon can be  
24 pre-empted and the bus put to a different higher priority use (*Solomon* col.3  
25

1   lns.25-38). Solomon does not disclose dynamically releasing at least one of the  
2   logical buses when no longer needed to route a stream of audio wave data, as  
3   recited in claim 1.

4       Accordingly, claim 1 is allowable over the Tulkoff-Solomon combination  
5   for at least the many reasons described above and Applicant respectfully requests  
6   that the §103 rejection be withdrawn.

7  
8       Claim 2 is allowable over the Tulkoff-Solomon combination by virtue of its  
9   dependency upon allowable claim 1. Claim 2 is also allowable over the Tulkoff-  
10   Solomon-Gulick combination because Gulick does not address the deficiencies of  
11   Tulkoff and/or Solomon as described above in response to the rejection of claim 1.

12       Claims 3-12 are allowable over the Tulkoff-Solomon combination by virtue  
13   of their dependency upon allowable claim 1.

14  
15       Claim 13 recites an audio generation system, comprising:

16           a software component that dynamically generates logical  
17           buses in response to a need associated with receiving the streams of  
18           audio wave data and that releases at least one of the logical buses  
19           when no longer needed, the logical buses corresponding respectively  
20           to the plurality of audio wave data consumers; and

21           the software component configured to receive one or more of  
22           the streams of audio wave data at each of the generated logical  
23           buses, and route any audio wave data that is received at a particular  
24           logical bus to an audio wave data consumer corresponding to said  
25           particular logical bus.

26       As described above in response to the rejection of claim 1, the  
27   Tulkoff-Solomon combination does not show or disclose that logical buses are

1 dynamically generated in response to a need associated with receiving streams of  
2 audio wave data, and/or that a logical bus is released when no longer needed, as  
3 recited in claim 13. The Office recognizes that Tulkoff does not disclose  
4 dynamically generating a logical bus, and Solomon merely describes that an  
5 existing bus may be re-allocated. Neither Tulkoff nor Solomon dynamically  
6 generate a logical bus.

7 Accordingly, claim 13 is allowable over the Tulkoff-Solomon combination  
8 for at least the reasons described above in response to the rejection of claim 1, and  
9 Applicant respectfully requests that the §103 rejection be withdrawn.

10  
11 Claims 14-21 are allowable over the Tulkoff-Solomon combination by  
12 virtue of their dependency upon allowable claim 13.

13 Claims 22-24 are allowable over the Tulkoff-Solomon combination by  
14 virtue of their dependency upon allowable claim 13. Claims 22-24 are also  
15 allowable over the Tulkoff-Solomon-Gulick combination because Gulick does not  
16 address the deficiencies of Tulkoff and/or Solomon as described above in response  
17 to the rejection of claim 13.

1 Claim 25 recites an audio generation system, comprising:

2 a software component that dynamically generates a plurality  
3 of logical buses in response to a need associated with receiving the  
4 multiple streams of audio wave data, an individual logical bus  
5 configured to correspond to an audio wave data consumer, receive  
6 one or more of the streams of audio wave data, and route the one or  
more streams of audio wave data to the audio wave data consumer;  
and

7 wherein the synthesizer is configured to route at least one of  
8 the streams of audio wave data to different ones of the logical buses.

9 Tulkoff, Solomon, and/or Gulick do not teach or suggest a software  
10 component that dynamically generates a plurality of logical buses in response to a  
11 need associated with receiving the multiple streams of audio wave data, as recited  
12 in claim 25. As described above in response to the rejection of claim 1, Tulkoff  
13 and/or Solomon do not dynamically generate a plurality of logical buses in  
14 response to a need associated with receiving the multiple streams of audio wave  
15 data. Gulick does not address the deficiencies of Tulkoff and/or Solomon with  
16 respect to this feature of claim 25, and has not been cited by the Office as  
17 disclosing such.

18 Tulkoff, Solomon, and/or Gulick also do not teach or suggest the  
19 synthesizer configured to route at least one of the streams of audio wave data to  
20 different ones of the logical buses, as recited in claim 25. The Office  
21 acknowledges that the Tulkoff-Solomon combination does not describe this  
22 limitation of claim 25, and cites Gulick as describing a synthesizer configured to  
23 route at least one of the streams of audio wave data to different ones of the logical  
24 buses, as recited in claim 25 (*Office Action* p.19; *Gulick* col.6 lns.46-48).

25

1 Although the cited lines of Gulick describe a synthesizer, the synthesizer is not  
2 described as being configured to route at least one of the streams of audio wave  
3 data to different ones of the logical buses, as recited in claim 25

4 Accordingly, claim 25 is allowable over the Tulkoff-Solomon-Gulick  
5 combination for at least theses reasons and Applicant respectfully requests that the  
6 §103 rejection be withdrawn.

7  
8 Claims 26-30 and 32-35 are allowable over the Tulkoff-Solomon-Gulick  
9 combination by virtue of their dependency upon allowable claim 25. Additionally,  
10 claims 26-30 and 32-35 may be allowable over the Tulkoff-Solomon-Gulick  
11 combination for independent reasons.

12 Claim 31 is allowable over the Tulkoff-Solomon-Gulick combination by  
13 virtue of its dependency upon allowable claim 25. Claim 31 is also allowable over  
14 the Tulkoff-Solomon-Gulick-Hewitt combination because Hewitt does not address  
15 the deficiencies of Tulkoff, Solomon, and/or Gulick as described above in  
16 response to the rejection of claim 25.

17  
18 Claim 36 recites a system, comprising:

19 a plurality of logical bus objects configured to receive audio  
20 wave data, wherein each logical bus object corresponds to an audio  
21 wave data consumer, wherein each logical bus object is dynamically  
22 generated in response to a need associated with receiving the audio  
23 wave data, and wherein at least one of the logical bus objects can be  
24 dynamically released when no longer needed to route a stream of  
25 audio wave data;



1 As described above in response to the rejection of claim 1, Tulkoff and/or  
2 Solomon do not teach or suggest a plurality of logical bus objects ... wherein each  
3 logical bus object is dynamically generated in response to a need associated with  
4 receiving the audio wave data, and wherein at least one of the logical bus objects  
5 can be dynamically released when no longer needed to route a stream of audio  
6 wave data, as recited in claim 36. The Office acknowledges that Tulkoff does not  
7 disclose such, and relies on Solomon as disclosing this feature of claim 36 (*Office*  
8 *Action* p.10; *Solomon* col.3 lns.25-38).

9 However, as described above, the cited section of Solomon describes a  
10 "pre-emptible" PCI bus rather than dynamically generating and/or releasing a  
11 logical bus object, as recited in claim 36. The PCI bus in Solomon can be used to  
12 suspend the operation of a device connected to the bus when a higher priority  
13 operation demands another use of the bus (*Solomon*, col.3 lns.25-38). As such,  
14 Solomon merely describes that an existing bus can be pre-empted and put to a  
15 different use, and not that a logical bus object can be dynamically generated, as  
16 recited in claim 36.

17 Accordingly, claim 36 is allowable over the Tulkoff-Solomon combination  
18 for at least these reasons and Applicant respectfully requests that the §103  
19 rejection be withdrawn.

20  
21 Claims 37 and 41-43 are allowable over the Tulkoff-Solomon combination  
22 by virtue of their dependency upon allowable claim 36. Additionally, claims 37  
23 and 41-43 may be allowable over the Tulkoff-Solomon combination for  
24 independent reasons.  
25

1        Claims 38 and 40 are allowable over the Tulkoff-Solomon combination by  
2 virtue of their dependency upon allowable claim 36. Claims 38 and 40 are also  
3 allowable over the Tulkoff-Solomon-Gulick combination because Gulick does not  
4 address the deficiencies of Tulkoff and/or Solomon as described above in response  
5 to the rejection of claim 36.

6        Claim 39 is allowable over the Tulkoff-Solomon combination by virtue of  
7 its dependency upon allowable claim 36. Claim 39 is also allowable over the  
8 Tulkoff-Solomon-Gulick-Hewitt combination because Gulick and/or Hewitt do  
9 not address the deficiencies of Tulkoff and/or Solomon as described above in  
10 response to the rejection of claim 36.

11  
12        Claim 44 recites that "at least one stream of audio wave data is routed to a  
13 plurality of different logical buses". As described above in response to the  
14 rejection of claim 1, Tulkoff and/or Solomon do not teach routing at least one  
15 stream of audio wave data to a plurality of the logical buses, as recited in claim 44.

16        The Office cites Tulkoff as describing this feature (*Office Action* p.12;  
17 *Tulkoff* col.3 lns.32-35). As described above in response to the rejection of  
18 claim 1, the Office contends that Tulkoff discloses a mixer that receives multiple  
19 streams of audio, and that it is inherent that some sort of bus must be present to  
20 transport the multiple streams of audio (*Office Action* p.2). Even if Tulkoff  
21 inherently discloses some sort of bus, as the Office contends, Tulkoff does not  
22 disclose that at least one stream of audio wave data is routed to a plurality of  
23 different logical buses, as recited in claim 44.  
24  
25

1 Further, Solomon does not describe that at least one stream of audio wave  
2 data is routed to a plurality of different logical buses, as recited in claim 1, and the  
3 Office has not cited Solomon for describing such.

4 Accordingly, claim 44 is allowable over the Tulkoff-Solomon combination  
5 for at least the reasons described above and Applicant respectfully requests that  
6 the §103 rejection be withdrawn.

7  
8 Claim 45 recites:

9 dynamically generating at least one logical bus component in  
10 response to a need associated with receiving the streams of audio  
11 wave data, the logical buses configured to route the one or more  
12 streams of audio wave data to the audio wave data consumer  
13 component; and

14 dynamically releasing at least one of the logical buses when  
15 no longer needed to route a stream of audio wave data.

16 As described above in response to the rejection of claim 1, Tulkoff and/or  
17 Solomon do not teach or suggest “dynamically generating at least one logical bus  
18 component in response to a need associated with receiving the streams of audio  
19 wave data...and dynamically releasing at least one of the logical buses when no  
20 longer needed to route a stream of audio wave data”, as recited in claim 45. The  
21 Office acknowledges that Tulkoff does not disclose such, and relies on Solomon  
22 as disclosing this feature of claim 45 (*Office Action* p.12; *Solomon* col.3  
23 Ins.25-38). As described above, the cited section of Solomon describes a  
24 “pre-emptible” PCI bus that can be put to a different, higher priority use (*Solomon*,  
25 col.3 Ins.25-38). Solomon does not describe dynamically generating at least one

1 logical bus component in response to a need associated with receiving the streams  
2 of audio wave data, and then dynamically releasing at least one of the logical  
3 buses when no longer needed to route a stream of audio wave data, as recited in  
4 claim 45, and the Office has not cited Solomon for describing such.

5 Accordingly, claim 45 is allowable over the Tulkoff-Solomon combination  
6 for at least these reasons and Applicant respectfully requests that the §103  
7 rejection be withdrawn.

8  
9 Claims 47-48 and 50-51 are allowable over the Tulkoff-Solomon  
10 combination by virtue of their dependency upon allowable claim 45. Additionally,  
11 claims 47-48 and 50-51 may be allowable over the Tulkoff-Solomon combination  
12 for independent reasons.

13 Claims 46 and 49 are allowable over the Tulkoff-Solomon combination by  
14 virtue of their dependency upon allowable claim 45. Claims 46 and 49 are also  
15 allowable over the Tulkoff-Solomon-Gulick combination because Gulick does not  
16 address the deficiencies of Tulkoff and/or Solomon as described above in response  
17 to the rejection of claim 45.

18  
19 Claim 52 recites "dynamically generating logical buses in response to a  
20 need associated with receiving the streams of audio wave data" and "dynamically  
21 releasing at least one of the logical buses when no longer needed.

22 As described above in response to the rejection of claim 1, Tulkoff and/or  
23 Solomon do not teach or suggest dynamically generating logical buses in response  
24 to a need associated with receiving the streams of audio wave data...and  
25

1 dynamically releasing at least one of the logical buses when no longer needed, as  
2 recited in claim 52.

3 Accordingly, claim 52 is allowable over the Tulkoff-Solomon combination  
4 for at least these reasons and Applicant respectfully requests that the §103  
5 rejection be withdrawn.

6  
7 Claims 53-56 are allowable over the Tulkoff-Solomon combination by  
8 virtue of their dependency upon allowable claim 52. Additionally, claims 53-56  
9 may be allowable over the Tulkoff-Solomon combination for independent reasons.

10  
11 **Conclusion**

12 Pending claims 1-56 are in condition for allowance. Applicant respectfully  
13 requests reconsideration and issuance of the subject application. If any issues  
14 remain that preclude issuance of this application, the Examiner is urged to contact  
15 the undersigned attorney before issuing a subsequent Action.

16  
17 Respectfully Submitted,

18  
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